

**WHAT IS CLAIMED IS:**

1. In a network that includes at least one origin server and a plurality of network distributed proxy servers (NDPS) in communication with said at least one origin server, each NDPS including an associated cache, a method for constructing a revised cache layout of a media clip at each NDPS in accordance with a lazy caching approach and token exchange, the method comprising the steps of:

- (a) receiving rank change information for said media clip from the origin server at said each NDPS;
- (b) determining a revised cache layout responsive to the rank change information at said each NDPS;
- (c) receiving a client request for at least one segment of said media clip at one of said each NDPS;
- (d) returning said at least one requested segment from a cache associated with the one of said each NDPS in the case where a requested segment is stored therein; and
- (e) otherwise, initiating a token exchange with another NDPS that stores the requested segment.

2. The method of Claim 1, wherein the step of determining a revised cache layout responsive to the rank change information, further comprises the step of determining whether to cache or discard each of a plurality of segments of said media clip using said rank change information.

5 3. The method of Claim 2, wherein the step of determining whether to cache or discard each of a plurality of segments of said media clip using said rank change information, further comprises the step of re-computing a caching probability for each of said plurality of segments of said media clip and caching those segments whose computed probability is computed to be above a predetermined threshold value and not storing those segments whose computed probability is computed to be below said predetermined threshold value.

10 4. The method of Claim 1, wherein the step of receiving rank change information for said media clip from the origin server, further includes the step of periodically collecting said rank change information at the origin server.

15 5. The method of Claim 4, wherein the step of receiving said rank change information from the origin server, further includes the steps of:

- (a) maintaining a local hit count for said media clip at each respective NDPS;
- (b) periodically reporting the local hit count from each respective NDPS to the origin server;
- (c) combining the local hit counts reported by each respective NDPS at the origin

server to determine whether a rank change for said media clip has occurred;  
and

(d) reporting said rank change from said origin server to each respective NDSP.

5           6. The method of Claim 5, wherein the local hit count is a measure of a local preference  
of the media clip.

7. The method of Claim 1, wherein the step of initiating a token exchange with another  
NDPS that caches the requested segment further comprises the steps of:

10           (a) sending a segment request packet (SREQ) from said one of said each NDPS  
to said another NDPS with an associated token bit set to one for said requested segment;

             (b) determining at said another NDPS whether a token associated with said  
requested segment is set or not set;

             (c) rejecting said token exchange by said another NDPS in the case where it is  
15           determined that said token is set at said another NDPS; and

             (d) accepting said token exchange in the case where it is determined that said  
token is not set as said another NDPS.

8. The method of Claim 7, wherein step (d) further comprises the steps of:

20           (1) setting said token associated with said requested segment to one at said another  
NDPS;

(2) sending a segment reply message (SREP) with an associated token set to zero to said one of each of said proxy server; and

(3) returning the requested segment to the client.

5           9. The method of Claim 7, wherein step (d) precludes said another NDPS from accepting future token exchanges until a new rank change occurs.

10           10. A system for constructing a revised cache layout of a media clip at a plurality of network distributed proxy servers (NDPS) in accordance with a lazy caching approach and token exchange, the system including an origin server in communication with said plurality of NDPS's, each NDPS including an associated cache, the system including:

15                 means for receiving rank change information for said media clip from the origin server;

                  means for determining a revised cache layout responsive to the rank change information;

                  means for receiving a client request for at least one segment of said media clip;

                  means for returning said at least one requested segment from an NDPS cache from among said plurality of NDPS's; and

20                 means for initiating a token exchange with another NDPS which stores the requested segment.